

Notice of Allowability

Application No.

09/550,962

Examiner

Abbas I Abdulsalam

Applicant(s)

YAMASHITA, AKIHIRO

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2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/16/04.
2. ☒ The allowed claim(s) is/are 1, 4-14 and 18-30.
3. ☒ The drawings filed on 17 April 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 25
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


XIAO WU
PRIMARY EXAMINER

DETAILED ACTION***Allowable Subject Matter***

1. The following is an examiner's statement of reasons for allowance:

Iwasa et al. (USPN 5978403) teach an arrangement of LED and displaying devices. See col.11, lines 21-27. Iwasa teaches a matrix wiring of an anode wire (2), and a cathode wire (3) arranged in multiple numbers. See col. 7, lines 23-30. Iwasa teaches the arrangement of light emitting laser with multiple anode wiring and the application of voltage V2 to the cathode wires (n8 to n14) as well as the connection of current flowing to the anode wiring. See Fig 7, Fig 11 and col. 10, lines 1-6 and col. 13, lines 30-33. Furthermore, Iwasa teaches the time dependence of the current in simulated matrixing along with pattern of current flowing with respect to time elapsed. See col. 14, lines 59-67, and Fig 15.

Kawanami et al. (USPN 6333599) teach a measured time variation of the discharge current and manipulation of discharge time Td in terms of minimum and maximum discharge currents as shown in Fig. 7(A).

Regarding claim 1, none of the cited prior art teaches or suggests a display device comprising: a plurality of cathode wires, a plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, electroluminescence (EL) elements disposed between said plurality of cathode wires and anode wires, and in which an electrical charge is stored, a current source coupled to said anode wires, a voltage source coupled to said cathode wires, an anode control circuit connected between said anode wires and said current source, for

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discharging said stored charge from said EL elements, and for controlling respective current flow into said anode wires, a cathode control circuit connected between said cathode wires and said voltage source, for discharging said stored charge from said EL elements, and for controlling respective voltages at said cathode wires, a display controller for controlling said anode control circuit and said cathode control circuit, said display controller including a setting unit for setting a discharge time for discharging said stored charge of said EL elements before light emission of said EL elements to a time R_t , wherein a discharge time T_x for discharging said stored charge before light emission of said EL elements is determined so as to obtain a luminance L_p of said EL elements determined by:

$$L_p \geq 0.9 \times L_e,$$

where L_e is a luminance of light emitted by said EL elements storing substantially no electrical charge, and said discharge time R_t satisfies the relation of:

$$T_x \leq R_t.$$

Regarding claim 5 (renumbered as claim 7), none of the cited prior art teaches or suggests a method of driving a display device, said method comprising the steps of: providing a display device having a plurality of cathode wires, a plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, and electroluminescence (EL) elements disposed between said plurality of cathode wires and anode wires, wherein an electrical charge is stored in said EL elements, discharging said stored charge from said EL elements before light emission of the EL elements, controlling respective current flow into said anode wires, controlling respective

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voltages at said cathode wires, and setting a discharge time for which said stored charge is discharged from said EL elements before light emission of said EL elements to a time R_t , wherein a discharge time T_x for discharging said stored charge before light emission of said EL elements is determined so as to obtain a luminance L_p of said EL elements determined by:

$$L_p \geq 0.9 \times L_e$$

where L_e is a luminance of light emitted by said EL elements storing substantially no electrical charge, and said discharge time R_t satisfies the relation of:

$$T_x \leq R_t.$$

Regarding claim 18 (renumbered as claim 13), none of the cited prior art teaches or suggests a display device comprising: a plurality of cathode wires, a plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, electroluminescence (EL) elements disposed between said plurality of cathode wires and anode wires, and in which an electrical charge is stored, a current source coupled to said anode wires, a voltage source coupled to said cathode wires, an anode control circuit connected between said anode wires and said current source, for discharging said stored charge from said EL elements, and for controlling respective current flow into said anode wires, a cathode control circuit connected between said cathode wires and said voltage source, for discharging said stored charge from said EL elements, and for controlling respective voltages at said cathode wires, a display controller for controlling said anode control circuit and said cathode control circuit, said display controller including a setting unit for setting a discharge time for discharging said stored charge of said EL elements before light emission of said EL elements to a time R_t , wherein a discharge time T_x for

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discharging said stored charge before light emission of said EL elements is determined so as to obtain a luminance L_p of said EL elements determined by:

$$L_p \geq 0.9 \times L_e,$$

where L_e is a luminance of light emitted by said EL elements storing no electrical charge or almost no electrical charge, and said discharge time R_t satisfies the relation of:

$$T_x \leq R_t.$$

Regarding claim 21 (renumbered as claim 20), none of the cited prior art teaches or suggests a method of driving a display device, said method comprising the steps of: providing a display device having a plurality of cathode wires, a plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, and electroluminescence (EL) elements disposed between said plurality of cathode wires and anode wires, wherein an electrical charge is stored in said EL elements, discharging said stored charge from said EL elements before light emission of the EL elements, controlling respective current flow into said anode wires, controlling respective voltages at said cathode wires, and setting a discharge time for which said stored charge is discharged from said EL elements before light emission of said EL elements to a time R_t , wherein a discharge time T_x for discharging said stored charge before light emission of said EL elements is determined so as to obtain a luminance L_p of said EL elements determined by:

$$L_p \geq 0.9 \times L_e$$

where L_e is a luminance of light emitted by said EL elements storing no electrical charge or almost no electrical charge, and said discharge time R_t satisfies the relation of:

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$T_x \leq R_t$.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abduselam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is **(703) 306-0377**.

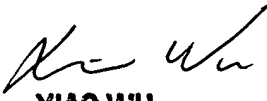
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Abbas Abdulsalam

Examiner

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January 24, 2005


XIAO WU
PRIMARY EXAMINER